OUTLINE FOR THE DETERMINATION OF MALARIAL MOSQUITOES IN ETHIOPIA

PART II—ANOPHELINE LARVAE

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The accompanying key constitutes Part II of the series of pictorial keys designed for quick determination of anophelines in the Ethiopian Empire. As in “Part I—Adult Female Anophelines” (Verrone, 1962) identifying characters have been diagrammed from specimens, nearly all of which were collected within the Empire and are presently preserved in the Head-quarters of the Ethiopian Malaria Eradication Service, Addis Ababa. Larval characters of the other recorded species, not collected by the Service, have been taken from the literature (Evans, 1938; De Meillon, 1947). Outstanding identifying features mentioned in the diagram captions are emphasized with arrows to facilitate rapid use of the key.

Thirty-four anopheine species (Table 1) are included in the key. A. amnis de Burca, 1943, A. erythroaes Corradetti, 1929 and A. gingers Corradetti and Archetti, 1947 have been excluded because of insufficient information confirming the existence of these species in Ethiopia. A. cinereus Theobald, 1901 and A. turkhdar Liston, 1901 have been grouped together. In most specimens however, the larvae of A. cinereus can be separated from those of A. turkhdar by the long attenuated filaments extending from the palinmate hair leaflets. On A. turkhdar the filaments, if present, are rather short and blunt. The key is preceded by an anopheine larva diagram showing structures and hairs used in identifying the specimens.

The Ethiopian Empire exhibits highly diversified climatic conditions—from the plateau area in the center of the country (average elevation 7,000 feet above sea level) to the Great Rift Valley lakes in south central Ethiopia (average elevation 5,000 feet above sea level) to the Danakil depression surrounding Lake Assale in the northeast (—380 feet below sea level). Temporary streams abound throughout the land, especially during the “long rains” from June through September. Major water areas in the Empire are shown on the map in Plate V.

Appreciation is expressed to the Ethiopian Malaria Eradication Service personnel, to the Ministry of Public Health and to U.S.A.I.D. coworkers for their help in making the paper more complete and to the Surveying and Mapping Division of the Ministry of Public Works and Communications for supplying information or the Ethiopian water areas.

TABLE 1.—Indexed list of Anopheine species in plates in the key.

A. adenosis * Christophers, 1934—Plate IV(a)
A. ardensis * (Theobald, 1905)—Plate V
A. chrisyi (Newsise and Gater, 1911)—Plate III
A. cinereus Theobald, 1901—Plate III
A. counros Laveran, 1900—Plate I
A. donalds Corradetti, 1900—Plate III
A. dincollins Evans, 1938—Plate III
A. d'chill Patton, 1909—Plate IV(a)
A. fenesis Giles, 1900—Plate II
A. gambiae Giles, 1900—Plate IV(a)
A. goroobisi Edwards, 1900—Plate III
A. harvis Evans, 1936—Plate IV(a)
A. implusa * (Theobald, 1905)—Plate I
A. kingi Christophers, 1934—Plate V
A. leoni * Evans, 1931—Plate II
A. longipalpis (Theobald, 1903)—Plate II
A. maculipalpis * Giles, 1902—Plate III
A. marshali (Theobald, 1903)—Plate II

¹United States Agency for International Development/Ethiopia.
Saddle hair single or with less than five branches

= \textit{Anopheles ordenssi}
(\textit{in part})

One long mesopleural hair with several branches at apex

= \textit{Anopheles kingii}

Saddle hair with five or more branches

= \textit{Anopheles ordenssi}
(\textit{in part})

Both long mesopleural hairs single

Plate V

ETECOFIA SHOWING MAJOR WATER AREAS
1. *natdensis* (Hill and Hayden, 1907)—Plate I
2. *nili* (Theobald, 1904)—Plate I
3. *obscurus* (Granberg, 1903)—Plate I
4. *paludis* Theobald, 1900—Plate I
5. *phaenoisis* Theobald, 1901—Plate IV(b)
6. *protorhinicus* (Theobald, 1903)—Plate III
7. *rhodenis* Theobald, 1901—Plate III
8. *rivularis* Leeson, 1935—Plate II
9. *ruhpet* (Gough, 1917)—Plate IV(b)
10. *nupicola* Lewis, 1937—Plate III
11. *zyzalis* Edwards, 1929—Plate II
12. *aquamans* Theobald, 1901—Plate IV(b)
13. *theileri* Edwards, 1942—Plate II
14. *murchans* Liston, 1901—Plate III
15. *welleri* *Theobald, 1904—Plate II

* Not seen by the writer.

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